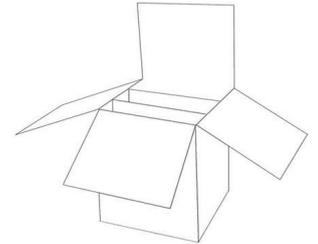


## Maths in a Box Investigation

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1. What 3-dimensional shape is your box?
  2. Explain in detail, what a 3-dimensional shape is
  3. Draw your 3-dimensional box using either 1cm grid squares in your maths book, or 1cm isometric dot paper. You might like to very lightly colour in your box using the actual colors of the real box  
**Extension:** Can you draw your box one or two times bigger than it actually is? What **ratio** are you using?
  4. How many faces does your box have? Label 4 of these on your drawing
  5. How many edges does your box have? Label 4 of these on your drawing
  6. How many vertices/corners does your box have? Label 4 of these on your drawing
  7. What type of angles make up your 3-dimensional box?  
Label these on your drawing  
**Extension:** Can you measure these angles?
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8. Using your ruler, measure the **length** of your box in cm
  9. Using your ruler, measure the **length** of your box in mm  
**Extension:** What is the **length** of your box in m?
  10. Using your ruler, measure the **width** of your box in cm
  11. Using your ruler, measure the **width** of your box in mm  
**Extension:** What is the **width** of your box in m?
  12. Using your ruler, measure the **height** of your box in cm
  13. Using your ruler, measure the **height** of your box in mm  
**Extension:** What is the **height** of your box in m?

14. What is the **definition of perimeter**? EXPLAIN carefully how you calculate perimeter. Perhaps you would like to use a drawing to help with your explanation?

15. Calculate the **total length of all of the sides(edges)** of your 3-dimensional box. This will give you the **perimeter** of the 3D shape.

16. What is the **definition of area**? EXPLAIN carefully how you calculate the area of a shape. Perhaps you would like to use a drawing to help with your explanation?

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17. What does a **net** mean when talking about 3-dimensional shapes?

18. Using **Google** go online and research 2 or 3 nets that match your 3-dimensional shape. Use the grid lines in your maths book to copy one of these nets into your book

**Extension:** Draw 2 or 3 **different** nets which match your shape

19. Which different **2-dimensional** shapes are part of your net. Label these on your drawing of your net

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20. What is the **definition of mass**?

Are mass and weight the same thing? EXPLAIN carefully

Perhaps you would like to use a drawing to help with your explanation

21. How much does your 3-dimensional box weigh in **grams**?

22. How much does your 3-dimensional box weigh in **kilograms**?

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23. What is the **definition of volume**? EXPLAIN carefully how you **calculate volume**

**Calculate the volume** of your 3-dimensional box

24. What is the **definition of capacity**?

Are capacity and volume the same thing? EXPLAIN carefully

Perhaps you can use a drawing to help with your explanation?